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ABSTRACT

Two studies were conducted to train students to use imagery in their learning and to investigate whether such training would transfer to solving visual puzzles and verbal problems. In the first study, with 78 graduate students, 29 experimental-group subjects were given a lecture and slide presentation designed to teach about imagery. Both the experimental and control groups were given a visual-puzzles test, which had been compiled from various puzzle books, to measure their ability to solve visual puzzles. Results showed that imagery training does facilitate transfer to solving visual puzzles. In the second study, with 133 graduate student volunteers, 79 subjects in the treatment group again received a lecture and slide presentation on imagery training. The treatment and control groups were administered the Visual Thinking for Verbal Problems Test, an eight-item test, to measure their ability to solve verbal problems using imagery techniques. Results indicated that if subjects are given imagery training, they will be able to use imagery for solving verbal problems. Seven references are listed. (LMM)

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Using Imagery Training to Solve Puzzles

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I believe imagery training is an important aspect to improve learning. Imagery training involves the following activities:

1. Teaching students to visualize their thoughts;
2. Helping students to make external representations of their internal thought processes;
3. Helping students to transfer their imagery training to solving visual and verbal problems.

Traditionally, teachers do not use imagery in the classroom. Teaching imagery to students may help them gain creative insights, organize thoughts and solve problems. Students also use imagery to organize information and simplify ideas. Imagery is the ability to create images of the mind to understand, learn and see experiences.

Training students to use imagery in their learning is important. Many teachers emphasize activities that involve verbal, analytical thought and ignore imagery learning. Two separate studies were conducted to train students to image in order that they might increase their imagery skills. It was hypothesized that students who were given training in imagery, would transfer those imagery skills for solving visual puzzles and verbal problems to a greater degree than those who did not receive imagery training.

In the first study seventy-eight (78) graduate students volunteered to participate. The experimental group (N = 29) was given a lecture and slide presentation designed to teach subjects about imagery. The lecture with slides included a definition of imagery, ways for students and teachers to use imagery in the classroom, examples of learning with imagery and exercises in solving visual puzzles through imagery. Both the experimental and control groups (N = 49) were given a Visual Puzzles Test, compiled from various puzzle books. This instrument was used to measure the ability of

the subjects to solve visual puzzles. The test consisted of fourteen items and a score was determined by the sum of the items correctly answered.

T-tests were conducted between the experimental and control groups and between males and females on their score on the Visual Puzzles Test. The t-tests revealed significant differences between the experimental and control groups ($t = 4.85$, $df = 76$, $p < .001$). Due to a significant homogeneity of variance, the pooled variance estimate was used. There were no significant sex differences on the Visual Puzzles Test. The mean for the control group ($N = 49$) was 7.6 and for the experimental group ($N = 29$) the mean was 10.4.

The results of this study show that imagery training does facilitate transfer to solving visual puzzles. The Visual Puzzles Test can be easily duplicated by teachers and researchers by using the many puzzle and game books available.

In the second study a total of one hundred and thirty-three (133) graduate students volunteered to participate. The treatment group consisted of seventy-nine (79) subjects and the control group had fifty-four (54) subjects. The treatment group again received a slide and lecture presentation on imagery training. This time the treatment and control groups were given the Visual Thinking for Verbal Problems Test (VTVP). This instrument was used to measure the ability of the subjects to solve verbal problems using imagery techniques. The Visual Thinking for Verbal Problems Test was compiled from various game books. The test consisted of eight (8) items and a score was determined by the sum of the items correctly answered.

T-tests were performed between the treatment and control groups and between the males and females on their score of the Visual Thinking for Verbal Problems Test (VTVP). The t-tests revealed significant differences

between the treatment group and the control group ($t = 10.25$, $df = 123$, $p < .001$). There were no significant sex differences on the Visual Thinking for Verbal Problems Test. The mean for the treatment group ($N = 79$) was 6.10 and the mean for the control group ($N = 54$) was 3.83.

Again, the results indicate that if subjects are given imagery training, they will be able to use imagery for solving verbal problems. It is apparent that the treatment was effective. I believe that teachers need to provide opportunities for imagery. I also believe that these two studies show the importance of allowing students to participate in the problem solving process. I was able to accomplish student participation by asking them to represent externally their thoughts on the instruments provided so that they could share their imagery with others. Further research and theory on visual thinking can be found in the references.

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